maltose; a point already partly examined by de Mering, Brown, and Héron. He finds that saliva, neutralized gastric juice, intestinal juice, invertine, and saliva and invertine combined, have no action on maltose, not more, except the last two, than on saccharose. When the intestinal juice has not been filtered through the apparatus it breaks up the two sugars.

M. Bourquelot concludes: 1. The small intestine is not the exclusive seat of saccharose digestion, and the precipitated acids may be considered as the important factors of the conversion. 2. Maltose, on the contrary, cannot be broken up in the intestine. 3. If the intestinal reduction of the two sugars is due to fermentation, it is different from invertine, which does not act on maltose.—*Revue Scientifique*, Nov. 10, 1883.

Artificial Inflation of the Large Intestine as a Diagnostic and Therapeutic Measure.

The whole large intestine can be fully dilated by injections of solutions of bicarbonate of soda and an acid, thus causing the development of carbonic acid gas. The procedure, as recommended by Professor von Ziemssen, is as follows: A rectal tube, about six inches long, is carried into the anus, and fixed by pressing together the nates, the patient lying on the back. A funnel is then connected with the rectal tube by means of rubber tubing. For complete inflation of the large intestine, ʒv of bicarbonate of soda, and ʒivss of tartaric acid are separately dissolved in water, and portions of either solutions alternately added. This is preferable to introducing the whole of the solutions at once, as the sudden distension of the intestine by the large volume of gas will cause a good deal of pain. Hence it is better to have intervals of several minutes between the additions of the solutions. Lest the gas should be developed in the rectal tube, the soda solution should be washed into the intestine by a little pure water.

Professor von Ziemssen claims that this method is very valuable as a diagnostic means, enabling the operator to judge definitely as to the position, form, and dilatability of the large intestine, the degree of occlusion of the ileo-cæcal valve for gases, the communication of the colon or rectum with neighbouring organs, as the stomach, small intestine, or bladder, or with the external surface of the body; also as to narrowing or occlusion of the intestinal canal, and under certain circumstances, also, as to the nature of an obstruction to the passage of feces. A very important use of this method is to diagnosticate the position of contractions, stricture, or occlusion of the intestine in cases in which it is desirable to operate, and also as showing the positions of peritoneal adhesions. Several cases are recorded in which a correct diagnosis was arrived at by this method, some being verified by post-mortem examination. As a rule, the small intestine is completely closed to the entrance of substances from the colon by the ileo-cæcal valve; under the influence of deep chloroform narcosis, however, this resistance is lessened, and fluids can be thrown into the small intestine.

As regards the therapeutic application of intestinal inflation, it may be used to cause evacuation of the bowels; carbonic acid gas being a prompt promoter of intestinal peristalsis. When used for this purpose, about one-half the above quantity of the reagents is sufficient. In cases of suspected ileus or intestinal obstruction, the bowel can be inflated whilst the patient is anæsthetized.

Contraindications.—Theoretically, artificial inflation is contraindicated in affections in which there is diminished resisting power of the intestinal walls, but practically this contraindication exists only in typhoid fever and intestinal tuberculosis.

In other cases of ulceration and carcinomatous disease of the intestines, von Ziemssen has met with no bad results from its use. It is also, theoretically, contraindicated after diffuse or circumscribed peritonitis, and especially after perimetritis and perityphlitis, on account of the danger of tearing adhesions and thickenings of the serous membrane, but practically this is not to be dreaded. The rupture of adhesions by gas inflation often causes tolerably intense pain, but does not cause inflammation; and on that account repeated inflation is useful in removing the after-effects of perityphlitis and periproctitis.—*Deutsch. Archiv für klin. Med.*, Bd. xxxiii., Hft iii. and iv.

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Solubility of Uric Acid in Saline Solutions.

M. JAHNS, of Göttingen, in an article on this subject, regards it of importance that the physician should know the influence exerted by the different salts, and particularly by the alkaline carbonates on the solubility of uric acid. The determination of this solubility has engaged the attention of chemists for some time. Liebig recommended phosphate of sodium to dissolve uric acid, and Wetzler has used borax for the same purpose. Lipowitz first noticed the powerful solvent action of carbonate of lithium on uric acid, and showed that it was superior to the carbonates of potash or soda, the acetate of potash, borax, or sodium phosphate.

Binswander has determined the solubility of uric acid at blood temperature. His experiments were made with grs. iv of the salt in f℥j of water; for the carbonate of soda f℥ij of water were used. His results were as follows:—

Grs. iv of		borax . . .	dissolved grs.		iijss	of uric acid.
"	"	sodium phosphate	"	"	j$\frac{1}{4}$	" "
"	"	carbonate of lithium	"	"	xv	" "
"	"	sodium carbonate	"	"	ij$\frac{3}{4}$	" "
"	"	sodium bicarbonate	"	"	ij	" "
"	"	borate of potash	"	"	ijss	" "
"	"	borate of ammonium	"	"	$\frac{3}{4}$	" "
"	"	boric acid . . .	"	"	$\frac{1}{7}$	" "
f℥j of water		. . . . .	"	"	$\frac{1}{100}$	" "

Becker has recommended birocitrate of magnesium, and a mixture of borax and sal ammoniac as solvents of uric acid. Madsen has given a formula for the preparation of birocitrate of sodium and magnesium, and states that it exercises a superior solvent action on uric acid to benzoate of lithium. In the following experiments a definite weight of pure uric acid, dried at 100° C., was frequently shaken for eight hours in a saline solution at a temperature of 38° to 40° C., the undissolved acid was then collected on a filter, washed with a definite quantity of water, dried at 100° C., and then weighed. The salt was dissolved in 200 c. c. in quantities of grms. .4 to .45, avoiding the deposit of acid urates. Under these conditions, the mean of five experiments showed that grm. 0.0214 of uric acid was dissolved in 200 c. c. of water. After deducting this weight from the quantity dissolved by 200 c. c. of the saline solutions, the results were as follows:—

1	part of	carbonate of lithium . .	dissolves	3.51	parts of uric acid.
1	"	benzoate " . .	"	0.026	" "
1	"	chloride " . .	"	0.	" "
1	"	carbonate of sodium (+10 H_2O)	"	0.98	" "
1	"	phosphate " (+12 H_2O)	"	1.25	" "
1	"	borax . . . . (+10 H_2O)	"	0.83	" "
1	"	sulphate of sodium (+10 H_2O)	"	0.	" "
1	"	chloride "	"	0.	" "
1	"	borocitrate of magnesium . .	"	0.099	" "
1	"	" " (Madsen)	"	0 093	" "

To obtain the total solubility, it is necessary to add to these numbers grm. 0.0214 of uric acid.